Configuration Control and beyond: in search of the 'good ramp'

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Outline

- Overview
- Configuration Control
- STORE
- Start-up documentation
- Conclusion & Discussion

Overview

- What motivates this discussion?
 - Scope of Configuration Control blurred
 - The fill number and ramp file for a 'good ramp' is not necessarily sufficient to restore the collider to that 'good' state, especially after long periods (> week)
 - Start-up of a run, even species previously run, often involves repeating setup of various systems (RF, instrumentation, timing, etc) from scratch. Changing species (e.g. Cu to pp) should involve a change of a known set of parameters.
 - Ultimately, these issues affect our operational efficiency.

Configuration Control: evaluation

- Increased usage this run
 - Over 50 RHIC parameters, new Booster and AGS lists
- Limitations:
 - Only as effective as the effort by individuals to update, read stored information
 - Generally ineffective for changes < 1day
 - Pollution control
 - Targets for running the machine should not be confused with archivable setpoints

Configuration Control (continued)

- Can applications make use of this database?
 - Ramp Editor reads default ramp file to load when starting application
 - pat reads default target and calculates position
 - Target tunes displayed on Artus
- Another avenue for information?

STORE

- During AGS fixed-target runs, a STandard Operating REcord was created during good running conditions, typically near the end of the run.
 - Archive of all (pet) devices, process functions
 - Hardcopy of analog scope signals, instrumentation, machine performance statistics, timing
- What does an archive of RHIC "pool" cover?
 - 163 FECs, 23 managers, 7 processes
 - Includes power supplies, quench detection, instrumentation, vacuum, cryo, safety, timing, RF, experiments
 - Does not include AtR, AGS extraction
 - Nearly 19,000 devices, 630,000 parameters logged in < 20 minutes
 - Selective archiving and restoration is paramount (already accomplished in large part by Controls group)

STORE (continued)

- Is this method feasible/useful for RHIC?
 - For RHIC, requires at least 2 separate entities injection, store
 - Link archive with snapshot and rampID for a more complete picture of the collider
 - Possible solution for restoring machine state run-run or week-week
 - Trigger a STORE operation before dumping a 'good ramp'

Start-up

- <u>Guides</u> to enable Operations to complete, or assist with, more of the tasks now reserved for specialists
 - Reduces call-ins of system experts, utilizing phone consultations if necessary
 - Helps eliminate single-point (person) failure of Start-up chronology
 - Educates Operators for troubleshooting systems during the run
- Guides that include information for the specialists
 - Establish standard methods for various personnel from run to run

Start-up (continued)

- Refine timeline to avoid bottlenecks in the progression of Start-up tasks
 - Example: setting rev tick for instrumentation setup currently depends on completion of RF capture – no tunes, orbit, etc. available for injecting coasting beam.

Summary

- Extend use of Configuration Control by merging multiple sources of information.
- Avoid saturating Configuration Control by providing an alternate method for bookmarking proper machine settings.
- Organize a combination of ramp files, snapshot data, and archives that will satisfy both long- and short-term needs for restoring the Collider to a particular state.
- Streamline Start-up tasks by writing documentation, standardizing methods, and increasing Operator participation.